Data Enabled Forms FAQ

(Last edited: 27September2005)

History:

27September2005: FAQ posted.

7October2005: Fixed typo in FDF description, /Root indirect reference; added note about multiple field names; added note about 'case matters' with PDF and FDF names, added note about PDF/FDF strings.

Why Data Enabled Forms?

The Bankruptcy Reform Act (*Bankruptcy Abuse Prevention and Consumer Protection Act of 2005*) mandates that the U.S. Trustees and the U.S. Federal Judiciary collect and process information that was previously only available on bankruptcy forms (i.e. not part of the CM/ECF document filling process), or on forms that were added by the Reform Act. Without some automation, collection of this new information would add a significant burden on the U.S. Trustees and the Judiciary and upon users of CM/ECF who would have to enter the additional information that they already entered on the forms. Data enabled forms will allow the information to be entered once by CM/ECF users and then be automatically extracted from the forms for use by the U.S. Trustees and the U.S. Federal Judiciary. Next year, when the Reform Act is fully operational, CM/ECF will prompt for the additional information during filing if a data enabled form is not submitted.

Why PDF?

The judiciary has standardized on PDF as the only document format that may be submitted to CM/ECF. PDF is a document format that was created by Adobe Systems Incorporated (Adobe) and is implemented in the family of Adobe Acrobat products. The PDF standard is a proprietary, open standard: proprietary, in the sense that it is copyrighted and controlled by Adobe; but open in the sense that anyone may implement software that creates, manipulates or reads PDF documents. There are many products, both commercial and open-source, that implement the PDF standard to create and manipulate PDF formatted documents. The PDF standard has evolved through several versions, the latest being PDF Version 1.6. PDF document are 'final-form' documents that can be thought of as 'electronic paper:' PDF documents are rendered the same on all computer platforms and on paper. Thus a PDF document displayed on a computer screen is identical to a printed paper copy of the document: fonts, line breaks, paragraph breaks, page breaks are the same. Consistent rendering is important to the judiciary for legal and records reasons.

What is PDF/A?

PDF/A is a (non-proprietary) ISO standard based on PDF Version 1.4, a subset of the current PDF Version 1.6 standard. PDF/A was designed to remove the 'proprietary' adjective that concerned potential users of PDF and to be the archival format for PDF

documents. Although not currently required, the Judiciary is contemplating requiring the submission of PDF/A compliant documents in the future.

Why PDF Forms?

The Judiciary is committed to continued exclusive use of PDF. The PDF standard includes two mechanisms for defining forms: XFA Forms (variously called Adobe Designer Forms, Adobe XML Forms, or Adobe LifeCycle Forms), and AcroForms. For legal and records reasons the judiciary requires complete, final form documents, which is why it requires PDF documents. In the case of forms, we require that both the form template and the form data (form+data) be filed, not just form data as is the case with many form systems.

What Are XFA Forms?

XFA Forms (which can be created using Adobe Designer, hence the alternate name Designer Forms) are a recent addition to the PDF standard (first introduced in PDF Version 1.5 and expanded in PDF Reference Version 1.6, section 8.6.7). Acrobat 7.0 (the current version of Adobe's PDF creation, edit, reading software) implements PDF Version 1.6. XFA Forms utilize XML throughout; XFA stands for XML Forms Architecture. While it can be argued that XFA Forms are technically superior to the alternate AcroForms, the newness of XFA Forms raises several problems. XFA Forms are not part of the PDF/A standard which is based on PDF Version 1.4. While XFA Forms are part of the PDF Version 1.6 proprietary, open standard like previous versions of PDF, to date (September, 2005) there are no commercial or open-source alternatives to using Adobe products. Adobe's XFA Forms as a standard is competing with the fully-open w3c Xforms standard. The big advantage that XFA Forms offers over Xforms is that XFA Form are PDF documents, and like other PDF documents, are final form and include form+data; Xforms are not final form and only include data. However, in the forms world, it is not clear how wide the requirement for submission of final-form, form+data, documents is. Time will tell.

What Are AcroForms?

AcroForms are PDF form documents, defined as part of the PDF standard since PDF Version 1.2. There are many programs and libraries, both commercial and open-source that support creation, reading and manipulation of AcroForms. While AcroForms have limitations that are not found in XFA Forms, AcroForms are a mature technology that is adequate for the needs of the judiciary. AcroForms are defined in the PDF Reference Version 1.6, section 8.6.

How Do I Create an AcroForm?

Most commonly, AcroForms are created using Acrobat (either full Acrobat or Acrobat Pro). Generally, a PDF form template is first created (using any PDF creating software such as a word processor). The PDF form template is them opened using Acrobat. Using the 'Form Tool' (from Acrobat 7.0: Tools -> Advanced Editing ->Forms -> Show Forms Toolbar), hot-spots are overlayed with form tool. For example to enable text data entry, the Text Field tool is selected from the Form Tool, a selection rectangle is

drawn over a template text entry field and then selected. The web site PlanetPDF has A Step-by-Step Introduction to Acrobat PDF Forms.

How Do You Process AcroForms?

Once an AcroForm exits, you can merge data with the form or extract data from the form. You can merge data with the form either to pre-populate the form before the user enters data, or to create a final form PDF document from a complete set of data entered by the user (say collected by an application). Once an AcroForm data-enabled form exists, the data can be extracted for further processing.

What Is An FDF File?

An FDF File is an ordinary ASCII text file containing just structured AcroForm data. The FDF file format is defined in the PDF Reference, Version 1.6, Section 8.6.6. In practice, only a small subset of the FDF specification is used. The minimum FDF file consists of a Header, Body and Trailer:

```
%FDF-1.2
1 0 obj
<< /FDF
   << /Fields
      [ << /T (field-name-1) /V (value of field-name-1) >>
        << /T (field-name-2) /V (value of field-name-2) >>
          ...
      ]
   >>
>>
endobj
trailer
<< /Root 1 0 R >>
%%EOF
```

Since the T's and V's (Tags and Values) are the only variable, creating an FDF is very straight forward. The FDF file could have been created from an external source (so that an AcroForm can be pre-populated) or could have been created by extracting data from an AcroForm. The Adobe Reader only transmits FDF files when submitting data from an AcroForm. As we have noted above, the judiciary requires form+data, not just data (e.g. the FDF file).

Could You Give Some More Details About PDF and FDF syntax?

The syntax for both PDF and FDF are fully defined in the PDF reference (see below). There are some syntax and semantics issues that deserve special note:

(1) The same field name may appear several times on a form. Fields with the same name are considered the same; when one is set with a value, the others are also set with the same value.

(2) The syntax of a string uses left and right parentheses to delimit the text of a string. If you want to include a parentheses in a string, quote it

with a backslash (e.g. '\)'); if you want a backslash, also quote it with a backslash (e.g. '\\'). Make sure any software that generates a FDF looks at the field values for parentheses and backslashes and quotes them appropriately.

(3) Case matters with names in PDF and FDF. Names start with a forward slash (e.g. /Fields). Names /FIELDS and /Fields are different.

What Tools Are Available To Process AcroForms?

There are both commercial and open source tools and libraries available to create and process PDF documents and AcroForms in particular. See PDFzone.com , PlanetPDF.com or www.pdf-util.com for more information. Below are example programs for manipulating AcroForms using two open source tools: iText and pdftk.

Is It Safe To Use 'Open-Source' Tools In My Commercial Application?

Generally speaking, if you are careful: yes. There are many open source licenses (see http://www.opensource.org/ for definitions and examples). Open source licenses (as defined by opensource.org) do not differentiate between commercial and non-commercial use of the software. Like commercial licenses, open source licenses define the terms and conditions for use of the software. Unlike commercial software, open source software terms and conditions are designed to insure the ability for everyone, including the end-user, to share the software. The minimum obligation you take on when using open source software is to insure that your end users be able to obtain the open source software. One of the big differences between the different open source licenses is whether the obligation to share also falls back to your software (the so-called 'viral' aspect of some open source licenses). Fortunately, for commercial users, there are many non-viral open source licenses. The open source software used in the examples below have licenses that are particularly friendly to commercial use; there are many other open source products that are similarly licensed commercial-friendly. As with any software, it is strongly recommended that before you incorporate any licensed software into your product, commercial or open source, you consult with an attorney familiar with commercial or open source software licensing, respectively. The FAQ for iText gives has a good discussion of its licensing: www.lowagie.com/iText/faq.html. Pdftk is based on iText and has similar licensing requirements.

How Do I Merge Data into An AcroForm?

There are many tools that can merge data into an AcroForm. Example 1 below shows how to take an FDF file and merge it with an associated form to create a merged (or filled-in) form.

How Do I Extract Data from An AcroForm?

There are many tools that can extract data from a filled-in AcroForm. Example 3 below shows how to extract data from an AcroForm to create a '.txt' file used by the Case Upload facility and Example 2 shows how to extract data from a filled-in AcroForm to produce the associated FDF file.

Can I Use The Adobe (Acrobat) Reader to Fill-in Forms?

The answer is a bit complex. The free Adobe Reader does not normally allow the saving or posting of modified or newly created PDF documents such as result from filling in a PDF form; it is a free reader, not writer. This means that you can not use the bare Adobe Reader to fill in a form and then use the resulting PDF document. You can extract just the data (in the form of an FDF file), but as we emphasized above, the judiciary requires form+data: both the form as the user saw it and the data as the user entered it. If you want to use the Adobe Reader as the data entry part of your application, Adobe has a product called Reader Extensions that enables the free Adobe Reader to save or post modified or newly created PDF documents. The reader extensions are applied to the PDF document. When the document is read by the Adobe Reader, the reader extensions enable the extended functionality of the Reader. The cost of applying a reader extension to a document (form) varies. See FormRouter.com for more information.

Can I Replace A Data-enabled Form For Case-Upload document(s)?

No, not at this time. However, Example 3 below shows how to process an AcroForm data enable form to create the corresponding '.txt' file needed for input to the Case-Upload facility.

Where Can I Find Additional Information? References?

PDF reference:
partners.adobe.com/public/developer/en/pdf/PDFReference16.pdf

XFA reference:
partners.adobe.com/public/developer/en/xml/xfapecification_2.1_draft3.pdf

PDFzone: www.PDFzone.com

PlanetPDF: www.PlanetPDF.com

iText site: www.lowagie.com/iText/

pdftk site: www.accesspdf.com/pdftk/

PDF Hacks book www.pdfhacks.com

[The AcroForm examples will be added shortly]

Examples:

Note: the examples presented here are for reference and informational purposes only and no guarantee is implied or given of suitability for any purpose. The use of commercial or open source software in these examples does not constitute endorsement or recommendation of the software.

Merge FDF file with AcroForm *(pdftk batch script example).*

Extract data from a filled AcroForm and create an FDF file *(iText Java example).*
Extract data from a filled AcroForm and create a Case-Upload compatible '.txt' file *(pdfk VBscript example).*

Sample FDF File
Sample Form Template
Sample Filled Form